

This section describes the regulatory setting, impacts associated with wastewater services, water services, storm drainage, and solid waste disposal that are likely to result from Specific Plan implementation, and measures to reduce potential impacts to wastewater, water supplies, storm drainage, and solid waste facilities.

This section is based in part on the following documents, reports and studies:

- *CalRecycle Solid Waste Information System* (CalRecycle, 2020);
- *CalRecycle Jurisdiction Diversion/Disposal Rate Summary* (CalRecycle, 2020);
- *City of Fresno Municipal Service Review and Sphere of Influence Update* (City of Fresno, 2016);
- *City of Fresno 2020 Urban Water Management Plan* (City of Fresno, 2021);
- *Fresno General Plan* (City of Fresno, 2014);
- *Fresno General Plan Public Review Draft Program Environmental Impact Report* (City of Fresno, 2020);
- *Response to Comments on the Draft Master Environmental Impact Report General Plan and Development Code Update - City of Fresno, Fresno County, California* (City of Fresno, 2014);
- *City of Fresno Specific Plan for the West Area Utility Background Summary* (West Yost Associates, 2022) (included in **Appendix D** of this EIR).
- *Specific Plan of the West Area Water Supply Assessment* (West Yost Associates, 2022) (included in **Appendix E** of this EIR);

Comments were received during the public review period for the Notice of Preparation (NOP) regarding stormwater from Cathy Caples (August 1, 2019) and the Fresno Metropolitan Flood Control District (August 1, 2019). These comments are included in **Appendix A** of this EIR.

### 3.15.1 WASTEWATER SERVICES

#### EXISTING SETTING

The City is the regional sewer agency for the Fresno-Clovis Metropolitan Area (FCMA). The City of Fresno owns and operates two wastewater treatment facilities that serve the Fresno metropolitan area: the Fresno-Clovis Regional Wastewater Reclamation Facility (Regional Facility) and the North Fresno Wastewater Reclamation Facility (NFWRF).

Wastewater is composed of sanitary flow and Infiltration and Inflow (I&I):

- The **sanitary flow** is the actual wastewater that is generated in the homes and businesses that are connected to the sewer system. The sewer system (or collection system) is intended to collect and convey all the sanitary flow from the homes and businesses to the wastewater treatment plant. The sanitary flow is often called the Average Dry Weather Flow (ADWF) because it is the primary source of wastewater during dry weather.
- **I&I** is stormwater that enters the wastewater collection system through flooded maintenance holes; defects in pipes, pipe joints, and sewer structures; or as inflow through illicitly connected downspouts, area drains, and catch basins. Sewer systems are intended

to prevent (or minimize) the I&I that enters the sewer system so that the stormwater does not cause the sewer capacities to be exceeded or result in treating stormwater at the wastewater treatment plant. The combined ADWF and I&I is called the peak wet weather flow (PWWF).

Collection systems are sized, designed, and constructed to convey the PWWF to the City's wastewater treatment plants. The City's wastewater collection system has roughly 23,000 manholes, 15 lift stations, 1.7 force mains, and 1,500 miles of gravity sewer pipes (Carollo, 2015). Generally, the collection system flows from northeast to southwest across the entire City. In the West Area, wastewater generally flows from the north to the south.

The City of Fresno owns and maintains the majority of the wastewater collection systems that convey wastewater to the Regional Facility, and all of the wastewater collection system that conveys wastewater to the NFWRF. The City's wastewater collection system consists of more than 1,500 miles of gravity flow pipelines, ranging in size from 4 inches to 84 inches in diameter, and ranging in age from new to more than 100 years old. The system also includes some pressure flow pipelines, by which pumped wastewater is conveyed to a point of discharge usually tributary to a gravity flow pipeline. Wastewater collection system pipelines consist of a number of different pipe materials, but the majority of the gravity flow pipelines consist of polyvinyl chloride (PVC) pipe, vitrified clay pipe (VCP) or concrete pipe, which includes both reinforced concrete pipe (RCP) and standard or non-reinforced concrete pipe (SCP). Together, these pipe materials account for approximately 98.4 percent of the wastewater collection system pipelines.

### **Fresno-Clovis Regional Wastewater Reclamation Facility**

The Regional Facility is located southwest of the City in the area generally bounded by Jensen, Cornelia, Central and Chateau Fresno Avenues. Wastewater from the Plan Area is treated at the Regional Facility, which has an average annual flow of approximately 60 million gallons per day (MGD). The Regional Facility receives and treats wastewater from three additional service areas, including the: City of Clovis, Pinedale County Water District, and Pinedale Public Utility District. The Regional Facility has an ADWF capacity of 92 MGD; however, it can treat the PWWF that occurs during storm events, which is higher than the ADWF but lasts for short duration. The City of Clovis owns 12.86 MGD of ADWF capacity, while the remaining capacity belongs to the City.

The Regional Facility received and treated approximately 72,302 acre-feet (AF) of wastewater during 2011, representing an annual average daily flow of approximately 64.5 MGD. The quantity of wastewater received and treated by the Regional Facility has been declining since 2006, when it peaked at a total of approximately 80,801 AF, representing an annual average daily flow of approximately 72.1 MGD.

Wastewater treatment plant capacities are typically rated based on the ADWF flow. The permitted wastewater treatment capacity of the Regional Facility is currently 80.0 MGD as an annual monthly average flow, and 88.0 MGD as a maximum monthly average flow. The City is currently evaluating upgrades and modifications to the existing Regional Facility that may result in a capacity rating increase of 15.0 MGD.

The Regional Facility employs an activated sludge wastewater treatment process, which produces un-disinfected secondary effluent. Most of the effluent is discharged to an array of percolation basins, where it percolates through the underlying soil strata and into the groundwater beneath the basin. However, some of the effluent is recycled by direct delivery to nearby farmland where it is used for restricted irrigation for feed/fodder and fiber crops. In addition, some of the percolated effluent is extracted from the groundwater beneath the basins by pumping and is recycled for irrigation by delivery to the Fresno Irrigation District (FID) canal system. The Regional Facility also has a 5 MGD tertiary treatment facility, which treats a portion of the overall plants rated capacity.

The facility includes the following major processes/facilities:

- Headworks and Grit Chambers – The screening facilities remove the larger trash and grit from the raw wastewater. From the headworks, the wastewater is pumped into pipes that flow to the primary clarifiers.
- Primary Clarifiers – These six tanks allow finer sediment to settle out of the effluent and skim fats, oils and grease from the top. Wastewater leaving the settling tanks is called primary effluent and either flows to the aeration basins or is diverted for additional screening prior to tertiary treatment.
- Aeration Basins – In the aeration basins air is pumped into the wastewater to increase the growth of bacteria and other micro-organisms that consume the organic waste. From the aeration basins the partially treated wastewater flows to the Secondary Clarifiers.
- Secondary Clarifiers – The secondary clarifiers are basins where the bacteria and micro-organisms settle out of the wastewater. There are 16 secondary clarifiers. Effluent leaving the secondary clarifiers is called secondary effluent, and it flows to storage ponds. There is currently no disinfection system for the secondary effluent.
- Membrane Bioreactor Tanks – Primary effluent designated for tertiary treatment is passed through a fine screen and two pre-aeration basins before entering four membrane bioreactor (MBR) tanks. MBRs combine biological treatment with membrane filtration. Effluent leaving the MBRs flows to ultraviolet (UV) disinfection vessels.
- UV Disinfection – Effluent from the MBRs is exposed to UV light to inactivate pathogens. There are four in-vessel UV disinfection trains. After disinfection, effluent is called tertiary effluent and is sent to recycled water storage.
- Storage Ponds – There are 1,720 acres of storage ponds where the effluent percolates into the groundwater, evaporates, or is pumped for irrigation of non-food crops.
- Solids Treatment – The bacteria and micro-organisms that settle out of the wastewater in the clarifiers are called the solids. Flotation thickeners, digesters, and belt filter presses are used to extract liquid from the solids. The liquid is returned to the settling tanks. The remaining solids are then stored in silos to await disposal.

### **North Fresno Wastewater Reclamation Facility**

The NFWRF is a tertiary level wastewater treatment facility located in north Fresno, near the intersection of Copper Avenue and Cedar Avenue. The NFWRF treats wastewater from the northern portion of the City. It was constructed in late 2006 to provide wastewater treatment service for residential and commercial development in the surrounding area of north Fresno. The NFWRF

employs a sequencing batch reactor (SBR) treatment process for secondary treatment, cloth media filtration for tertiary treatment, and an ultraviolet system to produce disinfected tertiary treated effluent. The effluent is used for golf course irrigation at the nearby Copper River Country Club.

The permitted capacity of the plant is 0.71 MGD average monthly flow and 1.07 MGD maximum daily flow. Treatment processes include a sequencing batch reactor for secondary treatment, cloth media filtration for tertiary treatment and sodium hypochlorite for disinfection. The tertiary treated wastewater is currently used for landscaping irrigation. Although the NFWRF does not serve the Plan Area directly, it contributes to the City's total wastewater treatment capacity.

The North Facility operates under a Waste Discharge Requirement (WDR), Order No 5-2006-0090-01, and a NPDES Permit (No. CA0085189). The WDR for the North Facility establishes limits for the average dry weather flow discharge. The current permitted average dry weather flow discharge is 0.71 MGD. The North Fresno Facility's current average dry weather flow is less than 0.71 MGD.

### **Effluent Disposal and the Recycled Water System**

The Regional Facility includes preliminary, primary, secondary, and tertiary treatment units with disinfection. Secondary treatment consists of three treatment trains with an annual average capacity of 87 mgd, consisting of 30 mgd for Train A and 57 mgd for Trains B and C combined. In 2017, a 5-mgd tertiary treatment system — the Tertiary Treatment and Disinfection Facility — was completed. The system can be expanded to 15 mgd and ultimately to 30 mgd (Water Systems Consulting Inc., 2021).

The City has three primary means of effluent disposal:

1. Undisinfected secondary effluent to on-site and off-site farmland for restricted irrigation;
2. Undisinfected secondary effluent to percolation ponds; and
3. Disinfected tertiary effluent to the recycled water distribution system.

The percolated effluent has been deemed equivalent to Title 22 tertiary treated water by the State Water Resources Control Board Division of Drinking Water (DDW). The City has been extracting this water for reuse in areas within and surrounding the Regional Facility, as well as to FID's canals, through an exchange agreement for delivery to FID agricultural customers.

The discharged effluent is disposed within the City boundaries and just southwest of the metropolitan area. The treated effluent percolation ponds are within the City's SOI and hydrologic sphere that benefit the City's overall regional water budget.

In addition to the Regional Facility, the NFWRF serves the residential and commercial development and golf course in a portion of northeast Fresno. Since the treatment includes filtration and disinfection producing water quality that meets Title 22 tertiary criteria, it is suitable for additional future uses such as landscape irrigation, freeway irrigation, and many industrial water reuse opportunities.

## **Future Wastewater Flow and Effluent Disposal**

The City has the capacity to produce more recycled water than it can currently use. The City will continue to expand the recycled water delivery system. The City's most recent Wastewater Collection System Master Plan Update (Carollo, 2015) was based on land uses from the City's 2014 General Plan. At General Plan build-out, the City will encompass approximately 156.6 square miles of land and is projected to generate 202.4 MGD of future PWWF.

## **REGULATORY SETTING – WASTEWATER**

The following is an overview of the federal, State and local regulations related to wastewater that are applicable to the proposed Specific Plan.

### **State and Federal**

#### **CLEAN WATER ACT (CWA) / NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITS**

The CWA is the cornerstone of water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

The CWA regulates discharges from "non-point source" and traditional "point source" facilities, such as municipal sewage plants and industrial facilities. Section 402 of the Act creates the NPDES regulatory program which makes it illegal to discharge pollutants from a point source to the waters of the United States without a permit. Point sources must obtain a discharge permit from the proper authority, in this case the Central Valley Regional Water Quality Control Board. NPDES permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, stormwater associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than one acre, mining operations, and animal feedlots and aquaculture facilities above certain thresholds.

Permit requirements for treatment are expressed as end-of-pipe conditions. This set of numbers reflects levels of three key parameters: (1) biochemical oxygen demand (BOD), (2) total suspended solids (TSS), and (3) pH acid/base balance. These levels can be achieved by well-operated sewage plants employing "secondary" treatment. Primary treatment involves screening and settling, while secondary treatment uses biological treatment in the form of "activated sludge."

All so-called "indirect" dischargers are not required to obtain NPDES permits. An indirect discharger is one that sends its wastewater into the sanitary sewer system for treatment. Although not regulated under NPDES, "indirect" discharges are covered by another CWA program called pretreatment. "Indirect" dischargers send their wastewater into a city sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering surface water.

## Local

### FRESNO GENERAL PLAN

The Fresno General Plan contains the following objectives and policies that are relevant to wastewater for the proposed Specific Plan:

**Objective PU-4:** Ensure provision of adequate trunk sewer and collector main capacities to serve existing and planned urban development, consistent with the Wastewater Master Plan.

**Policy PU-4-a: Plan for Regional Needs.** Coordinate and consult with the City of Clovis, pursuant to the Fresno-Clovis Sewerage System Joint Powers Agreement, so that planning and construction of sewer collection facilities will continue to meet the regional needs of the Metropolitan Area.

**Policy PU-4-b: New Trunk Facilities.** Pursue construction of new or replacement sewer trunk facilities or other alternatives consistent with the Wastewater Master Plan to accommodate the uses as envisioned in this General Plan.

**Policy PU-4-c: System Extension and Cost Recovery.** Pursue enlargement or extension of the sewage collection system where necessary to serve planned urban development, with the capital costs and benefits allocated equitably and fairly between the existing users and new users.

**Policy PU-4-d: Capacity Modeling.** Continue development and utilization of citywide sewer flow monitoring and computerized flow modeling to determine availability of sewer collection system capacity to serve planned urban development.

**Policy PU-4-e: Evaluate and Maintain Infrastructure.** Promote the health and safety of the community, and preserve the longevity and sound condition of the sewer collection system through evaluation and maintenance of the sewer infrastructure.

- Continue assessments of existing infrastructure and facilitate necessary repair to damaged and worn-out pipelines.
- Continue routine sewer line maintenance and cleaning programs to prevent line blockages caused by root intrusion, grease buildup, and pipe failure.
- Continue a sewer line replacement program and funding to repair or replace sewer lines damaged or worn beyond useful life.

**Objective PU-5:** Preserve groundwater quality and ensure that the health and safety of the entire Fresno community is not impaired by use of private, onsite disposal systems.

**Policy PU-5-a: Mandatory Septic Conversion.** Continue to evaluate and pursue where determined appropriate the mandatory abatement of existing private wastewater disposal (septic) systems and mandatory connection to the public sewage collection and disposal system.

**Policy PU-5-b: Non-Regional Treatment.** Discourage, and when determined appropriate, oppose the use of private wastewater (septic) disposal systems, community wastewater disposal systems, or other nonregional sewage treatment and disposal systems within or adjacent to the Metropolitan Area if these types of wastewater treatment facilities would cause discharges that could result in groundwater degradation.

**Objective PU-7:** Promote reduction in wastewater flows and develop facilities for beneficial reuse of reclaimed water and biosolids for management and distribution of treated wastewater.

**Policy PU-7-a: Reduce Wastewater.** Identify and consider implementing water conservation standards and other programs and policies, as determined appropriate, to reduce wastewater flows.

## THRESHOLDS OF SIGNIFICANCE – WASTEWATER

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Consistent with Appendix G of the CEQA Guidelines, the proposed Specific Plan will have a significant impact on Utilities if it would:

- Require or result in the relocation or construction of new or expanded wastewater facilities, the construction or relocation of which could cause significant environmental effects; and/or
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the projects projected demand in addition to the providers existing commitments.

## IMPACTS AND MITIGATION MEASURES

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### **Impact 3.15-1: The proposed Specific Plan would require or result in the relocation or construction of new or expanded wastewater facilities, the construction of which could cause significant environmental effects. (Significant and Unavoidable)**

The Specific Plan does not trigger a need to expand the Regional Facility. There would be a network of sewer collection infrastructure installed throughout the Plan Area to serve the West Area Specific Plan. The Specific Plan wastewater collection system will include future construction of sewer improvements and replacements of existing lines, some of which are now over 75 years old. Approximately 3.6 miles of public and privately-owned (i.e., homeowner's responsibility) sewer system drainage lines are proposed to serve the Plan Area at buildout.

Physical impacts from future construction of the wastewater infrastructure within the Plan Area is addressed within this EIR. A discussion of relevant operational and construction impacts can be found in each respective section of this EIR. Impacts associated with development of the Plan Area, as proposed, would result in significant and unavoidable impacts related to aesthetics (Impact 3.1-3), agricultural resources (Impact 3.2-1 and Impact 3.2-2), air quality (Impacts 3.3-1 through 3.3-3), public services and recreation (Impacts 3.13-3 through 3.13-5).

## CONCLUSION

The construction of the new wastewater facilities, which are associated with future buildout of the Plan Area, has the potential to cause environmental impacts. The potential for environmental impacts associated with the installation of the wastewater system, and all construction activities within the Plan Area, are addressed throughout this EIR. In some cases, the direct and indirect impacts are potentially significant and warrant mitigation measures, while in other cases there are significant and unavoidable impacts. The future wastewater infrastructure would fall within the range of environmental impacts disclosed in this EIR, and would be subject to relevant mitigation measures included in this EIR.

It is noted, however, that future development of wastewater infrastructure within the proposed Plan Area would contribute to significant and unavoidable impacts related to aesthetics (Impact 3.1-3), agricultural resources (Impact 3.2-1 and Impact 3.2-2), air quality (Impacts 3.3-1 through 3.3-3), public services and recreation (Impacts 3.13-3 through 3.13-5). Therefore, consistent with the analysis included in this Draft EIR, impacts related to construction of new or expanded stormwater drainage facilities to serve the Plan Area are considered *significant and unavoidable*.

**Impact 3.15-2: The proposed Specific Plan would not result in a determination by the wastewater treatment provider which serves or may serve the Plan Area that it does not have adequate capacity to serve the Specific Plan's projected demand in addition to the provider's existing commitments. (Less than Significant)**

## PROJECT WASTEWATER GENERATION

The projected future average dry weather base flow as a result of buildout of the City's General Plan is 150 MGD. This flow includes 8.7 MGD from large dischargers and 15.86 MGD from Clovis. The 8.40 MGD designated by Clovis for treatment at a satellite wastewater treatment plant is not included. This flow also includes all flow from the Southeast Growth Area and the flow from the anticipated treatment plant in the North Growth Area.

The wastewater generation resulting from buildout of the Specific Plan Area is shown in Table 3.15-1. As shown, buildout of the Specific Plan Area would result in 11,490,429.94 gpd, or approximately 11.5 MGD. It is noted, however, the wastewater generation calculated and shown in Table 3.15-1 includes much of the wastewater that is currently generated by the existing developed uses in the Plan Area.

**TABLE 3.15-1: WASTEWATER GENERATION**

PROPOSED LAND USE CATEGORY	PROPOSED GROSS ACREAGE	UNIT FACTOR (EDU/ACRE) <sup>1</sup>	GPD
Residential - Low	516.57	1	149,805.82
Residential - Medium Low	1,440.22	1	417,664.66
Residential - Medium	2,118.00	12	7,370,641.09
Residential - Medium High	280.27	12	975,343.84
Residential - Urban Neighborhood	154.21	15	670,830.55



<i>PROPOSED LAND USE CATEGORY</i>	<i>PROPOSED GROSS ACREAGE</i>	<i>UNIT FACTOR (EDU/ACRE)<sup>1</sup></i>	<i>GPD</i>
Residential - High	46.61	15	202,746.79
Commercial - Community	57.74	4	66,983.50
Commercial - Recreation	41.34	3	35,963.04
Commercial - General	215.07	7	436,596.37
Commercial - Regional	4.24	4	4,913.79
Employment - Office	82.25	7	166,976.87
Employment - Business Park	74.97	4	86,964.60
Employment - Light Industrial	32.75	4	37,989.85
Mixed Use - Neighborhood	308.43	4	357,775.70
Mixed Use - Corridor/Center	96.00	7	194,885.67
Mixed Use - Regional	0.00	15	0.00
Open Space - Pocket Park	1.55	-	-
Open Space - Neighborhood Park	86.26	-	-
Open Space - Community Park	24.20	-	-
Open Space - Regional Park	0.00	-	-
Open Space - Open Space	6.79	-	-
Open Space - Ponding Basin	129.59	-	-
Public Facility - Public Facility	27.42	2	15,903.47
Public Facility - Church	55.80	2	32,361.46
Public Facility - Special School	18.38	3	15,988.15
Public Facility - Elem. School	91.82	3	79,882.00
Public Facility - Elem./Middle/High School	145.37	3	126,474.18
Public Facility - High School	46.95	3	40,847.21
Public Facility - Fire Station	3.32	3	2,891.32
<b>TOTAL</b>	<b>6,106.14</b>	<b>--</b>	<b>11,490,429.94</b>

NOTE: <sup>1</sup> ACCORDING TO THE CITY'S WASTEWATER COLLECTION SYSTEM MASTER PLAN, 290 GALLONS PER DAY (GPD) OF WASTEWATER ARE GENERATED PER EQUIVALENT DWELLING UNIT (EDU). UNIT FACTORS ARE PROVIDED IN TABLE 4-4 OF THE CITY'S WASTEWATER COLLECTION SYSTEM MASTER PLAN.

SOURCE: DE NOVO PLANNING GROUP, 2020.

## COLLECTION AND TREATMENT SYSTEM

As noted previously, the Regional Facility is located southwest of the City in the area generally bounded by Jensen, Cornelia, Central and Chateau Fresno Avenues. Wastewater from the Plan Area is treated at the Regional Facility, which has an average annual flow of approximately 60 MGD. The Regional Facility receives and treats wastewater from three additional service areas, including: the City of Clovis, Pinedale County Water District, and Pinedale Public Utility District. The Regional Facility has an ADWF capacity of 92 MGD; however, it can treat the PWWF that occurs during storm events, which is higher than the ADWF but lasts for short duration. The City of Clovis owns 9.3 MGD of ADWF capacity, while the remaining capacity belongs to the City. Additionally, although the NFWRF does not serve the Plan Area directly, it contributes to the City's total wastewater treatment capacity.

Wastewater treatment plant capacities are typically rated based on the ADWF flow. The permitted wastewater treatment capacity of the Regional Facility is currently 80.0 MGD as an annual monthly average flow, and 88.0 MGD as a maximum monthly average flow. The City is currently evaluating

upgrades and modifications to the existing Regional Facility that may result in a capacity rating increase of 15 MGD.

The Specific Plan would require wastewater collection and treatment services. The City owns and operates their own collection system. Sewer collection and treatment issues and opportunities that would result from buildout of the Plan Area (as noted in the City of Fresno Specific Plan for the West Area Utility Background Summary) are discussed below.

At build out, the City's wastewater flows are expected to increase substantially. As such, there are some areas of the existing collection system that cannot convey the build out PWWF within the established maximum flow to full flow (q/Q) ratio of 1.15. There are several localized driven improvements needed in the Downtown area (C-1 through C-7), and an additional upsizing for the pipeline along the City's southern border that feeds the Regional Facility (C-8, C-10).

Four development driven projects (D-26A, D-26B, D-27A, D-27B) are identified within or along the borders of the Plan Area. Approximately 3.6 miles of public and privately-owned (i.e., homeowner's responsibility) sewer system drainage lines are proposed to serve the West Area at buildout. The City does not currently collect supervisory control and data acquisition (SCADA) data for their lift stations. Were feasible, Collection System Master Plan (Carollo, 2015) recommends that upgrades be performed to allow for proper flow monitoring data acquisition, which will help confirm lift station capacity and monitor lift station performance.

Additional agricultural or urban water reuse in the future is a possibility with additional distribution and/or treatment facilities. The Regional Facility currently delivers approximately 4,700 AFY (Water Systems Consulting Inc., 2021) of undisinfected secondary effluent to growers of non-food crops within the City. An additional 1,400 acres could be served with an expansion of the conveyance system or the establishment of an exchange agreement with FID. Within the Plan Area, approximately 6.3 miles of new recycled water distribution pipelines are planned to be constructed by buildout.

The 2010 Recycled Water Master Plan outlines three locations for potential regional recharge areas. Also referenced as a "super recharge basin", one of the regional recharge areas is located partially within the Plan Area. If the basins are constructed, a portion of the recharge water could be made up of recycled water, provided there is at least six months travel time from the super recharge basin to the nearest drinking water well.

### CONCLUSION

The proposed Specific Plan would increase the amount of wastewater requiring treatment. The wastewater would be treated at the Regional Facility. Given the capacity of 92 MGD, the average annual flow of approximately 56 MGD, and the 11.5 MGD generated by the buildout of the Plan Area (including existing demand and future demand), there is sufficient plant capacity. This is a ***less than significant*** impact.

## 3.15.2 WATER SUPPLIES

### EXISTING SETTING

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#### **Water Purveyor and System**

The existing incorporated area of the City of Fresno encompasses approximately 115 square miles (2020 UWMP). The City's General Plan includes the City's the area outside of the City limits that the City expects to annex and urbanize in the future, also known as the SOI. With a few exceptions, the City's water service area is coterminous with the City limits. As future developments within the SOI, but outside the City limits, are approved, they will be annexed into the City and served by the City water system.

The City's water system consists of about 1,860 miles of distribution and transmission mains, 260 municipal groundwater wells, three surface water treatment facilities (SWTFs) with current rated capacities ranging from 4 to 54 MGD, five water storage facilities with pump stations, including one at each of the SWTFs plus two in the distribution system, and three booster pump facilities.

As of the close of the 2020 calendar year, the City has over 139,500 residential, commercial, industrial, and institutional water service connections and produced nearly 122,000 AF of water.

In addition to the City's water system, there are four independent water systems located within the City limits, including Bakman Water Company, Pinedale County Water District, California State University Fresno, and Park Van Ness Mutual Water Company. These independent water systems have their own water supplies, and do not receive water from the City, with the exception of a portion of the Pinedale County Water District east of Highway 41 and south of Herndon Avenue. The City has emergency interties with the City of Clovis and California State University, Fresno, that provides additional water supply flexibility.

The Plan Area is served by nearly 96 miles of distribution pipelines and just under a mile of recycled water service (in North Cornelia Avenue between West Clinton Avenue and West Shields Avenue).

#### **Water Demand**

##### **HISTORICAL AND EXISTING WATER DEMAND**

The following information is based on the *Specific Plan of the West Area Water Supply Assessment* (WSA) (West Yost, 2022).

The City's water demand has decreased as a result of the economic downturn of 2008 through 2011, water use reductions in response to recent drought conditions, and metering of residential properties. Since 2013, all water services in the City's water service area have been metered. Single-family residential water use has decreased since the Single-Family Metering Program was completed in 2013. Landscape irrigation demands did decrease in 2015 and 2016, likely due to the drought

## 3.15 UTILITIES

restrictions, and continue to recover after the drought ended in 2017. Table 3.15-2 shows the City's historical water demands for 2013 through 2020.

**TABLE 3.15-2: HISTORICAL WATER DEMAND**

	2013 <sup>(a)</sup>	2014 <sup>(a)</sup>	2015 <sup>(a)</sup>	2016 <sup>(a)</sup>	2017 <sup>(a)</sup>	2018 <sup>(a)</sup>	2019 <sup>(a)</sup>	2020 <sup>(b)</sup>
Total Potable and Raw Water Demand, af/yr	133,692	122,191	102,308	103,045	110,525	110,725	106,500	121,993

NOTES: <sup>(A)</sup> CITY OF FRESNO 2020 UWMP, FIGURE-4-1.

<sup>(B)</sup> CITY OF FRESNO 2020 UWMP, TABLE 4-2.

SOURCE: WEST YOST, 2022.

### FUTURE WATER DEMAND

The City's 2045 projected water demand at buildout (based on existing water demand, the projected demands for the Plan Area under the General Plan, the difference in demands for the Plan Area between the Specific Plan and the General Plan, and undefined future developments) is summarized in Table 3.15-3. The General Plan is expected to be built out by 2056, but for the purposes of the WSA that was completed for the proposed Specific Plan, the Plan Area was assumed to be annexed and built out by 2045. The City's preliminary water demand projections for the Plan Area under the General Plan were higher than for the Specific Plan, resulting in a negative value if the proposed Specific Plan land use map is built out instead of the General Plan.

**TABLE 3.15-3: PROJECTED FUTURE WATER DEMAND AT 2045**

UNITS, AF/YR	WATER DEMAND
Current (2020) Water Demand <sup>(a)</sup>	121,993
General Plan for West Area <sup>(b)</sup>	23,730
<i>Subtotal (without Project)</i>	<i>145,723</i>
Project (West Area Specific Plan) <sup>(b,c)</sup>	-381
<i>Subtotal (with Project)</i>	<i>145,723</i>
Undefined Future Developments	95,724
<b>Total Water Demand</b>	<b>241,447</b>

NOTES:

<sup>(A)</sup> DATA FROM TABLE 5-1 OF THE WSA [TABLE 3.15-2 OF THIS SECTION].

<sup>(B)</sup> DATA FROM TABLE 2-2 OF THE WSA [TABLE 3.15-2 OF THIS SECTION].

<sup>(C)</sup> DIFFERENCE BETWEEN WEST AREA NEIGHBORHOODS SPECIFIC PLAN AND GENERAL PLAN FOR THE PLAN AREA.

<sup>(D)</sup> BALANCE BETWEEN SUBTOTAL (WITH PROJECT) AND TOTAL WATER DEMAND.

SOURCE: WEST YOST, 2022.

### DRY YEAR WATER DEMAND

As shown in Table 3.15-2, the City's 2015 water demand was significantly lower than the 2013 demand in response to the drought and the Governor's April 2015 Executive Order B-29-15 mandating 25 percent water conservation statewide. To reduce water use by 25 percent statewide, the State Water Resources Control Board (SWRCB) adopted a regulation which placed each urban water supplier into one of nine tiers which are assigned a conservation standard, ranging between four percent and 36 percent. Each month, the SWRCB compared every urban water suppliers' water use with their use for the same month in 2013 to determine if they were on track for meeting their conservation standard. The City of Fresno was initially placed into Tier 7 with a water conservation

standard of 28 percent as compared to 2013 use (the City's conservation standard was reduced to 25 percent in early 2016).

The City currently has a demand management program in place, as described in Section 9 of the City's 2020 Urban Water Management Plan (UWMP). The City's Water Shortage Contingency Plan, outlined in Section 8 and Appendix J of the City's 2020 UWMP, includes a five-stage plan describing specific actions to reduce water demand by up to 50 percent in the event of a water supply shortage or emergency. Demand is expected to decrease as the City implements water conservation measures in response to multiple dry years or other supply changes.

Table 3.15-4 presents the projected future dry year potable water demand.

**TABLE 3.15-4: PROJECTED FUTURE DRY YEAR TOTAL WATER DEMAND, AF/YR**

HYDROLOGIC CONDITION	2025	2030	2035	2040	2045
Single Dry Year <sup>(a)</sup>	164,092	176,132	184,174	192,228	200,287
Multiple Dry Years First Year <sup>(b)</sup>	199,204	212,756	222,310	231,876	241,447
Multiple Dry Years Second Year <sup>(b)</sup>	199,204	212,756	222,310	231,876	241,447
Multiple Dry Years Third Year <sup>(b)</sup>	190,267	193,637	197,736	201,753	205,708
Multiple Dry Years Fourth Year <sup>(b)</sup>	162,551	165,920	170,020	174,036	177,992
Multiple Dry Years Fifth Year <sup>(b)</sup>	199,204	212,756	222,310	231,876	241,447

**NOTES:**

<sup>(A)</sup> DATA FROM THE CITY OF FRESNO 2020 UWMP, TABLE 7-2.

<sup>(B)</sup> DATA FROM THE CITY OF FRESNO 2020 UWMP, TABLE 7-3.

SOURCE: WEST YOST, 2022.

## Water Supply

The City currently receives water supplies from four sources:

- Surface water contract water that is delivered to the City by two separate sources:
  - FID Agreement for Kings River water.
  - USBR Central Valley Project (CVP) Friant Division Contract for San Joaquin River water.
- Groundwater that is pumped from groundwater wells located within the City.
- Recycled water that is treated at the Regional Facility and NFWRF. This water may only be used for non-potable uses.

Each of these existing supplies is described below.

### SURFACE WATER CONTRACTS

The cumulative supply these contracts bring to the City provide the opportunity to construct surface water treatment facilities and optimize the use of these supplies. This conjunctive use approach continues the process of allowing the groundwater system to recover. Each of the surface water supplies is summarized in the following two sections.

**Surface Water Supplies through FID Agreement:** In May of 1976 the City of Fresno and FID executed an agreement that stipulated that as land is annexed to the City, the City will receive a pro rata share

of FID's Kings River entitlement; this agreement was revised, amended and restated in December, 2016. The pro rata share is based on the area annexed to the City, and within FID's boundaries, as compared to the total area of FID's water service area. The agreement stipulates the allocation amount will be reviewed each year by the two agencies to address new annexations to the City. So, as the City annexes new areas, the allocation will increase up to the limits stipulated in the 2016 agreement. Utilizing GIS, there will be approximately 71,925 acres of land within the SOI and within FID's water service boundaries at SOI buildout, excluding Bakman Water Company, CSU Fresno, and County islands.

As the City incorporates new land area into its service area, the percentage of FID supply increases. However, the 2016 FID Agreement sets the maximum percentage as 29.0 percent, although the City's service area is anticipated to expand and encompass more than 29.0 percent of FID's service area between 2025 and 2030. In 2020, the City's percentage of overall FID Kings deliveries was 25.79 percent. The supply projections in this plan limit the City's FID supply with the 29.0 percent cap, but if the agreement were revised in the future the City's FID allocation percentage could grow beyond 29.0 percent as the water service area expands. (City of Fresno 2020 UWMP)

**Surface Water Supplies through USBR Contract:** The City, through an agreement originally executed in January of 1961, secured a surface water supply from USBR CVP - Friant Division. This agreement, for an annual water supply of 60,000 af of Class 1 water, was last renewed in 2010 as a Section 9(d) Contract that provides water from the San Joaquin River in perpetuity. The USBR CVP – Friant Division facilities generally include: Friant Dam (Millerton Reservoir); the Friant Kern Canal; and the Madera Canal. The Friant-Kern Canal is maintained and operated by the Friant Water Authority. The USBR water supply is a wholesale supply.

Class 1 water was intended to be a supply that would be dependable in practically every year, regardless of the type of hydrologic water year. Class 2 water is essentially excess water available as determined by USBR and less reliable than Class 1 water. Class 1 water has historically been very reliable until the San Joaquin River Restoration Settlement and more recently by the restrictions on diversions from the Delta due to concerns over the declining health of Delta ecosystem.

#### GROUNDWATER

The City pumps groundwater from a portion of the Kings Subbasin underlying the City. The City's 2020 UWMP states that the City has a network of over 270 municipal wells and currently operates approximately 202 municipal supply wells within the Kings Subbasin. Groundwater quality is a concern because the groundwater basin has several major contaminant plumes involving organic compounds, inorganic compounds, solvents, pesticides, and other contaminants. The total well capacity, when the City's Water Master Plan was written, was approximately 460 MGD.

**Groundwater Basin Description:** The City's wells are located within the northern part of the Kings Subbasin of the San Joaquin Valley Groundwater Basin. The following section describes the Kings Subbasin, including its water-bearing formations, water levels, and water quality. Much of the following information has been incorporated from the City's 2020 UWMP. Except where noted, the description of the sub-basin is based largely on information provided in the 2016 DWR Bulletin 118 Interim Update, in which the groundwater basin description was last updated in December 2016.

The Kings Subbasin is not adjudicated and there are no legal restrictions to groundwater pumping. The Kings Subbasin is generally bounded: on the north by the San Joaquin River; on the west by the Fresno Slough; on the south by the Kings River and Cottonwood Creek; and on the east by the Sierra foothills. The upper several hundred feet within the Kings Subbasin generally consists of highly permeable, coarse-grained deposits, which are termed older alluvium. Coarse-grained stream channel deposits, associated with deposits by the ancestral San Joaquin and Kings Rivers, underlie much of the northwest portions of the City. Below the older alluvium to depths ranging from about 600 to 1,200 feet below ground surface, the finer-grained sediments of the Tertiary-Quaternary continental deposits are typically encountered. Substantial groundwater has been produced and utilized from these depths by the City; however, deeper deposits located in the southeastern and northern portions of the City have produced less groundwater. There are also reduced deposits in the northern and eastern portions of the City, at depths generally below 700 or 800 feet, which are associated with high concentrations of iron, manganese, arsenic, hydrogen sulfide, and methane gas. Groundwater at these depths does not generally provide a significant source for municipal supply wells. The City's average groundwater depth in 2015 is approximately 130 feet below the ground surface.

**Conditions of Overdraft:** The Sustainable Groundwater Management Act (SGMA) directs DWR to identify groundwater basins and subbasins that are in conditions of critical overdraft. This designation is determined based upon the presence of "undesirable impacts" such as seawater intrusion, land subsidence, groundwater depletion, and chronic lowering of groundwater levels. Per DWR's current list of critically overdrafted basins, finalized in February 2019, the Kings Subbasin is designated as a critically overdrafted basin.

As part of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, DWR is required to prioritize California groundwater basins to help identify, evaluate, and determine the need for additional groundwater level monitoring. Per the current CASGEM draft prioritization, completed in April 2019, the Kings Subbasin is a high priority subbasin.

The City has long made efforts toward offsetting the decline of groundwater levels and minimizing overdraft conditions through an active intentional recharge program that started in 1971. Through cooperative agreements with Fresno Metropolitan Flood Control District (FMFCD) and FID, the City has access to not only City-owned basins, but also those of these two agencies. The City has averaged over 60,000 AFY the previous five years and plans to gradually increase recharge by about 540 AFY each year. However, during wet years the City will recharge more water when it is available to allow to the City to draw on additional groundwater during dry years when surface water is not available.

**Groundwater Management:** As part of a partnership of local municipal water purveyors, irrigation districts, a flood control district, and the overlying county, the Fresno Area Regional Groundwater Management Plan (FARGMP) was prepared in conformance with AB 3030 and SB 1938. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006 (City of Fresno 2020 UWMP). The City of Fresno falls within the North Kings Groundwater Sustainability Agency (NKGSA). The NKGSA prepared and submitted

## 3.15 UTILITIES

its GSP on January 28, 2020 and is awaiting completion of DWR's review (DWR SGMA Portal GSP Status Summary).

**Historical Groundwater Use:** As discussed previously, the City has a network of over 270 municipal wells and currently operates approximately 202 municipal supply wells within the Kings Subbasin, according to the 2020 UWMP. The City's groundwater production over the last 18 years is provided in Table 3.15-5.

**TABLE 3.15-5: CITY OF FRESNO HISTORICAL GROUNDWATER PRODUCTION**

YEAR	TOTAL GROUNDWATER PRODUCTION (AFY)
2003	165,200
2004	160,000
2005	141,500
2006	136,000
2007	146,300
2008	148,700
2009	138,200
2010	128,600
2011	119,900
2012	119,500
2013	123,200
2014	106,800
2015	82,500
2016	99,100
2017	105,200
2018	76,800
2019	54,600
2020	55,000

NOTES: <sup>(A)</sup> FROM CITY OF FRESNO 2020 UWMP, TABLE 6-7.

SOURCE: WEST YOST, 2022.

**Projected Future Groundwater Use:** The amount of groundwater pumped during dry years is not projected to differ from the amount pumped during normal years. The City's projected future groundwater production through 2045 is provided in Table 3.15-6.

**TABLE 3.15-6: CITY OF FRESNO PROJECTED FUTURE GROUNDWATER PRODUCTION IN NORMAL AND DRY YEARS**

	2025	2030	2035	2040	2045
Total Groundwater Production During a Normal Year <sup>(a)</sup>	138,090	143,630	149,100	154,490	159,820
Total Groundwater Production During Dry Years <sup>(b)</sup>	138,090	143,630	149,100	154,490	159,820

NOTES: <sup>(A)</sup> FROM CITY OF FRESNO 2020 UWMP, TABLE 7-1. <sup>(B)</sup> FROM CITY OF FRESNO 2020 UWMP, TABLE 7-2.

SOURCE: WEST YOST, 2022.



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## REGULATORY SETTING – WATER SUPPLIES

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The following is an overview of the State and local regulations related to water supplies that are applicable to the proposed Specific Plan.

### State

#### URBAN WATER MANAGEMENT PLANNING ACT

The Urban Water Management Planning Act (California Water Code Sections 10610-10610.4) requires urban water suppliers such as Cal Water that provide water for municipal purposes to more than 3,000 customers, or more than 3,000 AFY of water, to prepare an UWMP. UWMPs assist water supply agencies in water resource planning given existing and anticipated future demands and must include a water supply and demand assessment comparing total water supply available to the water supplier with the total projected water use over a 20-year period. The Act requires that the plans be updated every five years and submitted to the California Department of Water Resources. The purpose of the plans is to support long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. UWMPs must also report progress on a 20% reduction in per-capita urban water consumption by 2020.

#### SENATE BILL (SB) 610

Senate Bill (SB) 610 was adopted in 2001 and reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process. SB 610 amended the statutes of the Urban Water Management Planning Act, as well as the California Water Code Section 10910 et seq. The foundation document for compliance with SB 610 is the UWMP, which provides an important source of information for cities and counties as they update their general plans. Likewise, planning documents such as general plans and specific plans form the basis for the demand information contained in an UWMP, as well as a Water Supply Assessment (WSA) required under SB 610.

Water Code Section 10910 (c)(4) states “If the city or county is required to comply with this part pursuant to subdivision (b), the water assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.”

Water supply planning under SB 610 requires reviewing and identifying adequate available water supplies necessary to meet the demand generated by a project, as well as the cumulative demand for the general region over the next 20 years, under a broad range of water conditions. This information is typically found in the current UWMP for the project area. SB 610 requires the identification of the public water supplier for a project. The City of Fresno has been identified in the WSA as the public water supplier to the West Area Specific Plan.

In addition, SB 610 requires the preparation of a WSA if a project meets the definition of a “Project” under Water Code Section 10912 (a). The code defines a “Project” as meeting any of the following criteria:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A hotel or motel, or both, with more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one or more of the projects identified in Section 10912(a); or
- A project creating the equivalent demand of 500 residential units or greater.

Alternately, if a public water system has less than 5,000 service connections, the definition of a “Project” includes any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of service connections for the public water system. Thus, the City has prepared a WSA as required by these criteria under SB 610. The WSA is included in this EIR as **Appendix E** of this EIR.

A WSA must include analysis of the estimated water demands and proposed water sources for a new project. More specifically, the WSA must address whether existing supplies of domestic water available to the development are adequate to serve the project, and will continue to be adequate over the next 20 years during normal, dry, and multiple-dry years, taking into account the public water system’s existing and planned future uses, including agricultural and manufacturing uses. (Wat. Code, § 10910, subds. (c)(3), (c)(4).)

If the public water system concludes that existing supplies will be sufficient for all such demands, including the demand created by a proposed project, the public water system must demonstrate the availability of such water by providing the following as part of a WSA:

- (A) Written contracts or other proof of entitlement to an identified water supply.
- (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
- (C) Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply.
- (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

(Id., subd. (d)(2).)

If the WSA concludes that existing supplies will not be sufficient, the WSA must include a strategy for acquiring “additional supplies.” (Wat. Code, § 10911, subd. (a).) Under such a scenario, the WSA should include information concerning the following:

- (1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.
- (2) All federal, State, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.
- (3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city and county. . . expects to be able to acquire additional water supplies.

*(Ibid.)*

A finding of insufficiency in a WSA does not require a city or county to deny or downsize a proposed development project. In preparing the environmental document for a project requiring a WSA, the city or county lead agency may include its own evaluation of the information contained in the WSA. (Wat. Code, § 10911, subd. (c).) At the time of project approval, the lead agency must then “determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.” (*Ibid.*) Even if, after the lead agency’s own evaluation, it determines that there are not sufficient water supplies for the project, there is nothing to prevent the agency from approving the project, so long as the agency “include[s] that determination in its findings for the project.” (*Ibid.*; see also CEQA Guidelines, § 15155, subd. (e).)

In 2016, the Legislature amended SB 610 to require WSAs for projects anticipating groundwater usage to address whether any groundwater sustainability agency has adopted a groundwater sustainability plan pursuant to SGMA, and to include information from any such plan. (See Wat. Code, § 10910, subd. (f)(2)(C)(ii).)

The Water Code also specifically references unadjudicated basins:

- (f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment . . .
  - (C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following. . .
    - (ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

### SENATE BILL (SB) 221

SB 221 (Business and Professional Code Section 11010 and Government Code Section 65867.5, Section 66455.3, and 66473.7) amended State law to improve the link between information on water supply availability and certain land use decisions made by cities and counties.<sup>1</sup>

SB 221 establishes the relationship between a project WSA and the tentative and final subdivision map approvals under the Subdivision Map Act. Pursuant to California Government Code, the public water system must provide a written verification of sufficient water supply prior to the approval of a new subdivision.<sup>2</sup> SB 221 prohibits a local planning agency from approving a final subdivision map for a residential subdivision of more than 500 units unless the water supplier has issued a written verification that a sufficient water supply is available for the project, or the local agency finds that alternate water supplies are, or will be, available prior to the completion of the project. This outcome can be accomplished by imposing a tentative subdivision map condition precluding the approval of final subdivision map absent the required showing of water availability. Nor may a local agency approve a development agreement for a project that will result in more than 500 residential units without the agreement expressly providing that required tentative maps will be subject to these water availability requirements.

A “sufficient water supply” under SB 221 is the total water supplies available to the water provider during normal, single dry, and multiple dry years within a 20-year projection that will meet the projected demand of the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses.<sup>3</sup> The water provider’s verification must be based on substantial evidence such as water supply contracts, capital outlay programs, and regulatory permits and approvals regarding the water provider’s right to and capability of delivering the project supply.

### THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

In California, there are two statutory schemes dealing with groundwater management. The first is the Groundwater Management Act, first introduced in 1992 as Assembly Bill (AB) 3030 and since modified by Senate Bill (SB) 1938 in 2002, and AB 359 in 2011. The second is the Sustainable Groundwater Management Act (SB 1168, SB 1319, and AB 1739) (SGMA), enacted in 2014.

The intent of the SGMA is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing voluntary groundwater management plans. The Act enables, but does not require, water agencies to develop and implement groundwater management plans (GWMPs) to manage the groundwater resources in the jurisdiction of the participating parties.

The SGMA defines sustainable groundwater management as the “management and use of groundwater in a manner that can be maintained during the planning and implementation horizon

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<sup>1</sup> California Business and Professions Code, Section 11010 and California Government Code, Section 66473.4.

<sup>2</sup> California Government Code, Section 66473.7(b).

<sup>3</sup> California Government Code, Section 66473.7(a)(2).

without causing undesirable results.” The legislation defines “undesirable results” to be any of the following effects caused by groundwater conditions occurring throughout the basin:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply;
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality;
- Significant and unreasonable land subsidence; and
- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The legislation provides for financial and enforcement tools to carry out effective local sustainable groundwater management through formation of groundwater sustainability agencies consisting of local public agencies, water companies regulated by the California Public Utilities Commission, and mutual water companies. The legislation requires that groundwater sustainability agencies within high- and medium priority basins under the California Statewide Groundwater Elevation Monitoring Program subject to critical conditions of overdraft prepare and submit groundwater sustainability plans for the basin by January 31, 2020, and requires groundwater sustainability agencies in all other groundwater basins designated as high- or medium priority basins to prepare and submit a groundwater sustainability plan by January 31, 2022. Following State approval, the basin would thereafter be managed under the groundwater sustainability plan. The legislation does not require adjudicated basins to develop groundwater sustainability plans, but they are required to report their water use.

The key intended outcomes and benefits of the Sustainable Groundwater Management Act are numerous, and include:

- Advancement in understanding and knowledge of the State’s groundwater basins and their issues and challenges;
- Establishment of effective local governance to protect and manage groundwater basins;
- Management of regional water resources for regional self-sufficiency and drought resilience;
- Sustainable management of groundwater basins through the actions of Groundwater Sustainability Agencies, utilizing State assistance and intervention only when necessary;
- All groundwater basins in California are operated to maintain adequate protection to support the beneficial uses for the resource;
- Surface water and groundwater are managed as “a Single Resource” to sustain their interconnectivity, provide dry season base flow to interconnected streams, and support and promote long-term aquatic ecosystem health and vitality;
- A statewide framework for local groundwater management planning, including development of sustainable groundwater management best management practices and plans;
- Development of comprehensive and uniform water budgets, groundwater models, and engineering tools for effective management of groundwater basins;

- Improved coordination between land use and groundwater planning; and
- Enforcement actions as needed by the SWRCB to achieve region-by-region sustainable groundwater management in accordance with the 2014 legislation.

As ultimately approved, groundwater sustainability plans must include, among other things, (i) a “general discussion of historical and projected water demands and supplies,” (ii) “[m]easurable objectives, as well as interim milestones in increments of five years, to achieve the sustainability goal in the basin within 20 years of the implementation of the plan, and (iii) a “description of how the plan helps meet each objective and how each objective is intended to achieve the sustainability goal for the basin for long-term beneficial uses of groundwater.” (Wat. Code, § 10727.2, subds. (a)(3), (b)(1), and (b)(2).)

To assist in attaining the above outcomes, the California Department of Water Resources (DWR) will provide groundwater sustainability agencies with the technical and financial assistance necessary to sustainably manage their water resources. The benefits of these outcomes include:

- A reliable, safe and sustainable water supply to protect communities, farms, and the environment, and support a stable and growing economy; and
- Elimination of long-term groundwater overdraft, an increase in groundwater storage, avoidance or minimization of subsidence, enhancement of water flows in stream systems, and prevention of future groundwater quality degradation.

In short, SGMA is landmark legislation that, for the first time in the history of California, requires comprehensive groundwater management, with the mandatory goal of bringing all currently overdrafted basins into sustainable conditions by no later than 2040 or 2042, with five-year increments of progress starting in 2025 and 2027.

As noted previously, the FARGMP was prepared in conformance with AB 3030 and SB 1938. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006. The City of Fresno falls within the NKGSA. As a high priority basin, the Kings Subbasin must be managed under a GSP by January 31, 2020. The NKGSA finalized the GSP and submitted it to the California DWR on January 28, 2020, ahead of the January 31, 2020 mandate.

### Local

#### FRESNO GENERAL PLAN

The Fresno General Plan contains the following objectives and policies that are relevant to water supply for the proposed Specific Plan:

**Objective PU-8:** Manage and develop the City’s water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing customers and planned urban development and economic diversification.

**Policy PU-8-a: Forecast Need.** Use available and innovative tools, such as computerized flow modeling to determine system capacity, as necessary to forecast demand on water production and distribution systems by urban development, and to determine appropriate facility needs.

**Policy PU-8-b: Potable Water Supply and Cost Recovery.** Prepare for provision of increased potable water capacity (including surface water treatment capacity) in a timely manner to facilitate planned urban development consistent with the General Plan. Accommodate increase in water demand from the existing community with the capital costs and benefits allocated equitably and fairly between existing users and new users, as authorized by law, and recognizing the differences in terms of quantity, quality and reliability of the various types of water in the City's portfolio.

**Policy PU-8-c: Conditions of Approval.** Set appropriate conditions of approval for each new development proposal to ensure that the necessary potable water production and supply facilities and water resources are in place prior to occupancy.

**Policy PU-8-d: CIP Update.** Continue to evaluate Capital Improvement Programs and update them, as appropriate, to meet the demands of both existing and planned development consistent with the General Plan.

**Policy PU-8-e: Repairs.** Continue to evaluate existing water production and distribution systems and plan for necessary repair or enhancement of damaged or antiquated facilities.

**Policy PU-8-f: Water Quality.** Continue to evaluate and implement measures determined to be appropriate and consistent with water system policies, including prioritizing the use of groundwater, installing wellhead treatment facilities, constructing above-ground storage and surface water treatment facilities, and enhancing transmission grid mains to promote adequate water quality and quantity.

**Policy PU-8-g: Review Project Impact on Supply.** Mitigate the effects of development and capital improvement projects on the long-range water budget to ensure an adequate water supply for current and future uses.

## THRESHOLDS OF SIGNIFICANCE – WATER SUPPLY

Consistent with Appendix G of the CEQA Guidelines, the proposed Specific Plan will have a significant impact on Utilities if it would:

- Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects; and/or
- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

## IMPACTS AND MITIGATION MEASURES

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### **Impact 3.15-3: The proposed Specific Plan would require or result in construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. (Significant and Unavoidable)**

The provision of public services and the construction of onsite and offsite infrastructure improvements will be required to accommodate future development consistent with the Specific Plan land use map. The Specific Plan would likely require extension of offsite water infrastructure to the undeveloped and underdeveloped portions of the Plan Area for water service. All offsite water piping improvements would be in or adjacent to existing roadways, thereby limiting new environmental impacts.

More than 15 percent (42 wells out of 270) of the City's wells were constructed prior to 1960 (over 60 years ago) and almost 40 percent (98 of 270) were constructed prior to 1970 (over 50 years ago). According to the Utility Background Summary completed for the Specific Plan, it has been recommended that the wells be replaced after 45 to 50 years; thus, about 40 percent of the City's wells are overdue for replacement. Also, mechanical and electrical well component upgrades are required about every 20 to 25 years. Therefore, it is anticipated that significant well installations, replacements, and upgrades may be needed to these systems in the near future to maintain existing groundwater supply capacity and meet increased water demands.

One of the greatest challenges facing the City's water distribution system is conveying water from areas of high-water production to areas of high-water demand. The water production and distribution system historically has been a distributed system whereby groundwater wells would be constructed on an as-needed basis in the area where the water was needed. This distributed water system does not require large diameter transmission mains to convey water from one portion of the City to another.

Physical impacts from future construction of the water infrastructure within the Plan Area is addressed within this EIR. A discussion of relevant operational and construction impacts can be found in each respective section of this EIR. Impacts associated with development of the Plan Area, as proposed, would result in significant and unavoidable impacts related to aesthetics (Impact 3.1-3), agricultural resources (Impact 3.2-1 and Impact 3.2-2), air quality (Impacts 3.3-1 through 3.3-3), public services and recreation (Impacts 3.13-3 through 3.13-5).

### CONCLUSION

The construction of the new water facilities, which are associated with future buildout of the Plan Area, has the potential to cause environmental impacts. The potential for environmental impacts associated with the installation of the water system, and all construction activities within the Plan Area, are addressed throughout this EIR. In some cases, the direct and indirect impacts are potentially significant and warrant mitigation measures, while in other cases there are significant and unavoidable impacts. The future water infrastructure would fall within the range of



environmental impacts disclosed in this EIR, and would be subject to relevant mitigation measures included in this EIR.

It is noted, however, that future development of water infrastructure within the proposed Plan Area would contribute to significant and unavoidable impacts related to aesthetics (Impact 3.1-3), agricultural resources (Impact 3.2-1 and Impact 3.2-2), air quality (Impacts 3.3-1 through 3.3-3), public services and recreation (Impacts 3.13-3 through 3.13-5). Therefore, consistent with the analysis included in this Draft EIR, impacts related to construction of new or expanded stormwater drainage facilities to serve the Plan Area are considered *significant and unavoidable*.

**Impact 3.15-4: The proposed Specific Plan would not have insufficient water supplies available to serve the Plan Area and reasonably foreseeable future development during normal, dry and multiple dry years. (Less than Significant)**

**PROJECTED WATER DEMAND**

The projected water demand for future buildout of the proposed Specific Plan is based on the calculations described in the Water Supply Assessment (the “Water Supply Assessment” or “WSA”) developed by West Yost Associates for the proposed Specific Plan.

Table 3.15-7 summarizes the projected availability of the City’s existing and planned future potable water supplies and the City’s projected water demands in normal, single dry and multiple dry years through 2045. As shown in Table 3.15-7, demand within the City’s service area is not expected to exceed the City’s supplies in any normal, single dry, or multiple dry year between 2025 and 2045.

The WSA completed for the West Area Specific Plan demonstrates that the City’s existing and additional potable water supplies are sufficient to meet the City’s existing and projected future potable water demands, including those future water demands associated with the Specific Plan, to the year 2045, under all hydrologic conditions.

As described in the WSA, the City’s 2020 UWMP addressed the sufficiency of the City’s groundwater supplies, in conjunction with the City’s other existing and additional water supplies, to meet the City’s existing and planned future uses. Based on the information provided above and that included in the City’s 2020 UWMP, the City’s groundwater supply, together with the City’s other existing and additional planned future water supplies, is sufficient to meet the water demands of the proposed Specific Plan, in addition to the City’s existing and planned future uses.

## 3.15 UTILITIES

**TABLE 3.15-7: FRESNO SUMMARY OF WATER DEMAND VERSUS SUPPLY DURING HYDROLOGIC NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS, MGD**

HYDROLOGIC CONDITION		2020	2025	2030	2035	2040
<i>NORMAL YEAR</i>						
Available Water Supply <sup>(a)</sup>		329,030	341,140	346,610	352,000	357,330
Total Water Demand <sup>(b)</sup>		199,204	212,756	222,310	231,876	241,447
Potential Surplus (Deficit)		129,826	128,384	124,300	120,124	115,883
Percent Shortfall of Demand		-	-	-	-	-
<i>SINGLE DRY YEAR</i>						
Available Water Supply <sup>(c)</sup>		189,852	195,392	200,862	206,252	211,582
Total Water Demand <sup>(d)</sup>		164,092	176,132	184,174	192,228	200,287
Potential Surplus (Deficit)		25,760	19,260	16,688	14,024	11,295
Percent Shortfall of Demand		-	-	-	-	-
<i>MULTIPLE DRY YEARS</i>						
Multiple Dry Year 1	Available Water Supply <sup>(e)</sup>	273,725	279,265	284,735	290,125	295,455
	Total Water Demand <sup>(d)</sup>	199,204	212,756	222,310	231,876	241,447
	Potential Surplus (Deficit)	74,521	66,509	62,425	58,249	54,008
	% Shortfall of Demand	-	-	-	-	-
Multiple Dry Year 2	Available Water Supply <sup>(e)</sup>	274,626	280,166	285,636	291,026	296,356
	Total Water Demand <sup>(d)</sup>	199,204	212,756	222,310	231,876	241,447
	Potential Surplus (Deficit)	75,422	67,410	63,326	59,150	54,909
	% Shortfall of Demand	-	-	-	-	-
Multiple Dry Year 3	Available Water Supply <sup>(e)</sup>	217,568	223,108	228,578	233,968	239,298
	Total Water Demand <sup>(d)</sup>	190,267	193,637	197,736	201,753	205,708
	Potential Surplus (Deficit)	27,301	29,471	30,842	32,215	33,590
	% Shortfall of Demand	-	-	-	-	-
Multiple Dry Year 4	Available Water Supply <sup>(e)</sup>	189,852	195,392	200,862	206,252	211,582
	Total Water Demand <sup>(d)</sup>	162,551	165,920	170,020	174,036	177,992
	Potential Surplus (Deficit)	27,301	29,472	30,842	32,216	33,590
	% Shortfall of Demand	-	-	-	-	-
Multiple Dry Year 5	Available Water Supply	314,840	320,380	325,850	331,240	336,570
	Total Water Demand	199,204	212,756	222,310	231,876	241,447
	Potential Surplus (Deficit)	115,636	107,624	103,540	99,364	95,123
	% Shortfall of Demand	-	-	-	-	-

**NOTES:**

- (A) FROM TABLE 6-3 OF THE WSA.  
 (B) DATA FOR 2040 FROM THE CITY OF FRESNO 2020 UWMP, TABLE 7-3.  
 (C) FROM THE CITY OF FRESNO 2020 UWMP, TABLE 7-2.  
 (D) FROM TABLE 5-3 OF THE WSA [TABLE 3.15-4 OF THIS SECTION].  
 (E) DATA FROM THE CITY OF FRESNO 2020 UWMP, TABLE 7-2.

SOURCE: WEST YOST, 2022.

### CONCLUSION

Water supplies are sufficient to meet the City's existing and projected future potable water demands, including those future water demands associated with the Specific Plan, to the year 2045 under all hydrologic conditions. Therefore, overall, buildout of the Specific Plan would result in a **less than significant** impact relative to this topic.

### 3.15.3 STORMWATER

#### EXISTING SETTING

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##### **Storm Drain System**

The FMFCD has primary responsibility for managing the local stormwater flows for the City, as well as a large area beyond the City's boundaries. The City's stormwater drains to urban stormwater basins, where it is retained for groundwater recharge or pumped to local irrigation canals owned by FID and then conveyed away from the municipal area.

Regionally, the City is protected by the U.S. Army Corps of Engineers' (USACE) Redbank-Fancher Creeks Flood Control Project. This project includes dams, detention basins, and levees designed to control upstream flood flows to approximately the 200-year storm event. Major facilities of this project include levee systems, the Big Dry Creek, Fancher Creek, and Redbank Creek dams and reservoirs, and the Alluvial Drain, Redbank Creek, Pup Creek, Fancher Creek, Big Dry Creek, Pup Creek Enterprise, and Dry Creek Extension detention basins.

Locally, the District's drainage system consists of approximately 680 miles of pipeline and more than 150 stormwater retention basins. The storm drainage pipeline system is designed to accept the peak flow rate of runoff from a two-year intensity storm event (a storm that has a 50 percent probability of occurring in any given year). When storm events occur that exceed the two-year intensity, ponding begins to occur in the streets until the pipeline system can remove the water. In the event of larger storms, "major storm breakover", the District has planned for streets or other conveyance to move the excess runoff to the basins.

The drainage system discharges to a system of irrigation canals, creeks, and the San Joaquin River, but is designed to retain and infiltrate as much runoff as possible into the underlying groundwater aquifer. The local drainage service area is subdivided into over 160 drainage areas, most of which drain to a retention basin. Drainage channels within the Plan Area include:

- East Branch Victoria Canal
- Epstein Canal
- Herndon Canal
- Minor Thornton Ditch
- Silvia Ditch
- Teague School Canal
- Tracy Ditch
- West Branch Victoria Canal
- Wheaton Ditch
- Austin Ditch

The Plan Area is drained by 15 drainage watersheds, six of which are fully within the Plan Area, and nine of which drain to areas immediately south or west of the Plan Area. There are seven existing retention basins within the Plan Area and an additional five that serve the Plan Area. An additional basin is planned to serve the drainage shed in the far southwestern corner of the Plan Area.

##### **Floodplain Mapping**

Flood Hazards in the City are described in the Federal Emergency Management Agency (FEMA)'s January 20, 2016 Flood Insurance Study but are largely based on hydraulic modeling performed in

1981. Although the Plan Area's northern boundary is very near the San Joaquin River, the area is not within a Special Flood Hazard Area. Local flooding can occur for events larger than a two-year event, but runoff is generally contained in the streets or other breakover easements. Such flooding is not reflected on FEMA's maps.

Improvements to storm drainage facilities are accomplished either as a part of privately funded on-site developments or as a part of the master plan, funded by drainage fees. FMFCD maintains an on-going update to the system hydraulic model for flood control and prepares a capital improvement plan update every 5 years.

Climate change is likely to increase the volume, frequency, and intensity of events in the future in the Central Valley.

### REGULATORY SETTING – STORMWATER

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The following is an overview of the federal, State and local regulations related to stormwater that are applicable to the proposed Specific Plan.

#### **Federal**

##### CLEAN WATER ACT

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands, perennial and intermittent stream channels. Section 401, Title 33, Section 1341 (also known as Section 401) of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 (also known as Section 404) of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas": subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual State or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such State or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain Federal or State projects from regulation under this Section: subparagraph (r); and,
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

- Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

The California State Water Resources Control Board and RWQCBs enforce State of California statutes that are equivalent to or more stringent than the Federal statutes. RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. In the City of Fresno, the Central Valley RWQCB is responsible for protecting surface and groundwater from both point and non-point sources of pollution. Water quality objectives for all of the water bodies within the City were established by the Central Valley RWQCB and are listed in the Basin Plan.

#### NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

National Pollutant Discharge Elimination System (NPDES) permits are required for discharges of pollutants to navigable waters of the United States, which includes any discharge to surface waters, including lakes, rivers, streams, bays, the ocean, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. NPDES permits are issued under the Federal Clean Water Act, Title IV, Permits and Licenses, Section 402 (33 USC Section 1342 and Sections 1341-1346).

The RWQCB issues these permits in lieu of direct issuance by the Environmental Protection Agency, subject to review and approval by the Environmental Protection Agency Regional Administrator. The terms of these NPDES permits implement pertinent provisions of the Federal Clean Water Act and its implementing regulations, including pre-treatment, sludge management, effluent limitations for specific industries, and anti-degradation. In general, the discharge of pollutants is to be eliminated or reduced as much as practicable so as to achieve the Clean Water Act goal of “fishable and swimmable” navigable (surface) waters. Technically, all NPDES permits issued by the RWQCB are also Waste Discharge Requirements issued under the authority of the CWA.

NPDES permits regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. NPDES permits are issued for five years or less, and are therefore to be updated regularly. To expedite the permit issuance process, the SWRCB has adopted several general NPDES permits, each of which regulates numerous discharges of similar types of wastes. The SWRCB has issued general permits for stormwater runoff from industrial and construction sites statewide. Stormwater discharges from industrial and construction activities in the Central Coast Region can be covered under these general permits, which are administered jointly by the SWRCB and RWQCB. The SWRCB adopted general permits for Phase II Regulated Small MS4s and Small Construction Activity. On March 10, 2003, Operators of Phase II Regulated Small MS4s and Small Construction Activity were required to obtain permit coverage.

The Central Valley RWQCB issued a region-wide MS4 Permit (Order No. R5-2016-0040) covering the entire Central Valley RWQCB Region, and covering storm drainage systems in cities as small as 10,000 population, in June 2016. Permittees must develop and implement a Storm Water Management Program (SWMP) including the following elements:

- Illegal Connection and Illicit Discharge Elimination Program

- Construction Storm Water Runoff Control Program
- Industrial/Commercial Storm Water Runoff Control Program
- Municipal Operations Storm Water Runoff Control Program (Pollution Prevention/Good Housekeeping)
- Public Involvement and Participation Program
- Planning and Land Development/Post Construction Storm Water Management Program
- Priority development projects, identified below, are required to incorporate stormwater mitigation measures:
  - Single-family hillside residences.
  - Residential subdivisions of ten or more units.
  - 100,000-square-foot industrial/commercial development.
  - Automotive repair shops.
  - Restaurants.
  - Parking lots with 5,000 square feet or more or with 25 or more parking spaces.
  - Redevelopment projects that are within one of above categories and that add or create at least 5,000 square feet of new impervious surface.
- Stormwater management strategies include:
  - Site Design Measures: Emphasize conservation and use of existing natural site features integrated with distributed, small-scale stormwater controls to mimic natural drainage.
  - Source Control Measures: Intended to keep pollutants from mixing with runoff, and thus minimize the transport of urban runoff and pollutants off-site and into storm drains. Source control measures include standards for design and operation of outdoor areas where substances that could contaminate stormwater are used, such as fueling areas, loading areas, material storage areas, and work areas.
  - Treatment Control Measures: remove pollutants from site runoff; measures include bioretention planters, vegetated swales, and infiltration trenches and basins.
  - Low Impact Development (LID) Measures: emphasize conservation and use of existing natural site features integrated with distributed, small-scale stormwater controls to mimic natural drainage. LID measures include stream setbacks and buffers, soil amendments, tree planting and preservation, rooftop and impervious area disconnection, porous pavement, eco roofs, bioretention planters, and rain barrels or cisterns.
- Monitoring Program.

### FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

Fresno County is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

Communities are occasionally audited by the Department of Water Resources to insure the proper implementation of FEMA floodplain management regulations.

## State

### DEPARTMENT OF WATER RESOURCES

The Department of Water Resources' (DWR) major responsibilities include preparing and updating the California Water Plan to guide development and management of the State's water resources, planning, designing, constructing, operating, and maintaining the State Water Resources Development System, protecting and restoring the Sacramento-San Joaquin Delta, regulating dams, providing flood protection, assisting in emergency management to safeguard life and property, educating the public, and serving local water needs by providing technical assistance. In addition, the DWR cooperates with local agencies on water resources investigations; supports watershed and river restoration programs; encourages water conservation; explores conjunctive use of ground and surface water; facilitates voluntary water transfers; and, when needed, operates a State drought water bank.

### CALIFORNIA WATER CODE

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Division 7 of the California Water Code) (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resource Control Board (SWRCB) and each of the RWQCBs power to protect water quality, and is the primary vehicle for implementation of California's responsibilities under the Federal Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a water quality control plan (Basin Plan) for its region the regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

The Water Code Section 13260 requires all dischargers of waste that may affect water quality in waters of the State to prepare and provide a water quality discharge report to the RWQCB. Section 13260a-c is as follows:

- (a) Each of the following persons shall file with the appropriate regional board a report of the discharge, containing the information that may be required by the regional board:

(1) A person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system.

(2) A person who is a citizen, domiciliary, or political agency or entity of this State discharging waste, or proposing to discharge waste, outside the boundaries of the State in a manner that could affect the quality of the waters of the State within any region.

(3) A person operating, or proposing to construct, an injection well.

(b) No report of waste discharge need be filed pursuant to subdivision (a) if the requirement is waived pursuant to Section 13269.

(c) Each person subject to subdivision (a) shall file with the appropriate regional board a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge.

### WATER QUALITY CONTROL PLAN FOR THE SACRAMENTO-SAN JOAQUIN RIVER BASIN

The Water Quality Control Plan for the Sacramento-San Joaquin River Basins (Basin Plan) includes a summary of beneficial water uses, water quality objectives needed to protect the identified beneficial uses, and implementation measures. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The term “water quality standards,” as used in the Federal Clean Water Act, includes both the beneficial uses of specific water bodies and the levels of quality that must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the RWQCB and others that are necessary to achieve and maintain the water quality standards.

The RWQCB regulates waste discharges to minimize and control their effects on the quality of the region’s ground and surface water. Permits are issued under a number of programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. The Basin Plan reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the California Water Code and the Clean Water Act.

### Local

#### FRESNO GENERAL PLAN

The Fresno General Plan contains the following objectives and policies that are relevant to stormwater and drainage for the proposed Specific Plan:



**Objective POSS-3:** Ensure that park and recreational facilities make the most efficient use of land; that they are designed and managed to provide for the entire Fresno community; and that they represent positive examples of design and energy conservation.

**Policy POSS-3-i: Joint Use with Drainage Facilities.** Continue to seek joint use agreements for use of FMFCD stormwater drainage facilities.

**Objective POSS-6:** Maintain and restore, where feasible, the ecological values of the San Joaquin River corridor.

**Policy POSS-6-b: Effects of Stormwater Discharge.** Support efforts to identify and mitigate cumulative adverse effects on aquatic life from stormwater discharge to the San Joaquin River.

- Avoid discharge of runoff from urban uses to the San Joaquin River or other riparian corridors.
- Approve development on sites having drainage (directly or indirectly) to the San Joaquin River or other riparian areas only upon a finding that adequate measures for preventing pollution of natural bodies of water from their runoff will be implemented.
- Periodically monitor water quality and sediments near drainage outfalls to riparian areas. Institute remedial measures promptly if unacceptable levels of contaminant(s) occur.

**Objective PU-7:** Promote reduction in wastewater flows and develop facilities for beneficial reuse of reclaimed water and biosolids for management and distribution of treated wastewater.

**Policy POSS-7-b: Reduce Stormwater Leakage.** Reduce storm water infiltration into the sewer collection system, where feasible, through a program of replacing old and deteriorated sewer collection pipeline; eliminating existing stormwater sewer cut-ins to the sanitary sewer system; and avoiding any new sewer cut-ins except when required to protect health and safety.

**Objective NS-3:** Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.

**Policy NS-3-a: Stormwater Drainage and Flood Control Master Plan.** Support the full implementation of the FMFCD Storm Drainage and Flood Control Master Plan, the completion of planned flood control and drainage system facilities, and the continued maintenance of stormwater and flood water retention and conveyance facilities and capacities. Work with the FMFCD to make sure that its Storm Drainage and Flood Control Master Plan is consistent with the General Plan.

**Policy NS-3-b: Curb and Gutter Installation.** Coordinate with Fresno Metropolitan Flood Control District (FMFCD) to install curbing, gutters, and other drainage facilities with priority

to existing neighborhoods with the greatest deficiencies and consistent with the Storm Drainage and Flood Control Master Plan.

**Policy NS-3-c: Dual Use Facilities.** Support multiple uses of flood control and drainage facilities as follows:

- Use, wherever practical, FMFCD facilities for groundwater management and recharge; and
- Promote recreational development of ponding basin facilities located within or near residential areas, compatible with the stormwater and groundwater recharge functions.

**Policy NS-3-d: Landscaped Buffer.** City will support the development of FMFCD ponding basins including the landscaping and irrigation for the top one third of the side sloped areas consistent with the FMFCD Basin Design Criteria.

**Policy NS-3-e: Pollutants.** Work with FMFCD to prevent and reduce the existence of urban stormwater pollutants pursuant to the requirements of the National Pollution Discharge Elimination Systems Act.

**Policy NS-3-h: Runoff Controls.** Implement grading regulations and related development policies that protect area residents from flooding caused by urban runoff produced from events that exceed the capacity of the Storm Drainage and Flood Control Master Plan system of facilities. Place all structures and/or flood-proofing in a manner that does not cause floodwaters to be diverted onto adjacent property, increase flood hazards to other property, or otherwise adversely affect other property.

**Policy NS-3-i: New Development Must Mitigate Impact.** Require new development to not significantly impact the existing storm drainage and flood control system by imposing conditions of approval as project mitigation, as authorized by law. As part of this process, closely coordinate and consult with the FMFCD to identify appropriate conditions that will result in mitigation acceptable and preferred by FMFCD for each project.

### FRESNO MUNICIPAL CODE

Chapter 6, Municipal Services and Utilities, Article 7, Urban Storm Water Quality Management and Discharge Control, of the Fresno Municipal Code establishes provisions regarding stormwater discharges. The purpose of the City's Urban Storm Water Quality Management and Discharge Control Ordinance is to ensure the health, safety, and general welfare of citizens and protect the water quality of watercourses and water bodies in a manner pursuant to and consistent with the CWA (33 U.S.C. Section 1251, et seq.) by reducing pollutants in urban stormwater discharges to the maximum extent practicable and by effectively prohibiting non-stormwater discharges to the storm drain system.

Chapter 11, Building Permits and Regulations, Article 6 Fresno Flood Plain Ordinance establish methods of reducing flood losses by: restricting or prohibiting uses which are dangerous to health,

safety, and property due to water or erosion hazards or flood heights or velocities; requiring that uses vulnerable to floods be protected against flood damage at the time of initial construction; controlling filling, grading, dredging, and other development which may increase flood damage; preventing or regulating the construction of flood barriers which will unnaturally divert flood water or which may increase flood hazards in other areas; and controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters.

## THRESHOLDS OF SIGNIFICANCE – STORMWATER

Consistent with Appendix G of the CEQA Guidelines, the proposed Specific Plan will have a significant impact on Utilities if it would:

- Require or result in the relocation or construction of new or expanded stormwater drainage facilities, the construction or relocation of which could cause significant environmental effects.

## IMPACTS AND MITIGATION MEASURES

### **Impact 3.15-5: The proposed Specific Plan would require or result in the construction of new or expanded stormwater drainage facilities, the construction of which could cause significant environmental effects. (Significant and Unavoidable)**

Stormwater represents a water supply opportunity that the City is currently leveraging with its extensive recharge basin system. Infiltration of captured stormwater allows groundwater to be recharged, improves overall water quality, and reduces the need for additional other water supplies.

Since the system is designed to handle approximately a two-year event within the underground drainage system, a significant amount of drainage is conveyed in the streets or through “major storm breakover” conveyances to detention/retention flood basins. This tends to result in shallow flooding over significant areas during larger events, but coupled with large regional flood control projects, the system can handle up to a 200-year, 30-day event.

Installation of storm drainage infrastructure would occur during the construction phases of individual future projects within the Plan Area. There is significant storm drainage infrastructure remaining to be constructed to serve the Plan Area. About 32 miles of additional drainage pipelines is anticipated to be constructed to meet buildout needs.

Physical impacts from future construction of the storm drainage infrastructure within the Plan Area is addressed within this EIR. A discussion of relevant operational and construction impacts can be found in each respective section of this EIR. Impacts associated with development of the Plan Area, as proposed, would result in significant and unavoidable impacts related to aesthetics (Impact 3.1-3), agricultural resources (Impact 3.2-1 and Impact 3.2-2), air quality (Impacts 3.3-1 through 3.3-3), public services and recreation (Impacts 3.13-3 through 3.13-5).

### CONCLUSION

The construction of the new on-site stormwater drainage facilities, which are associated with future buildout of the Plan Area, has the potential to cause environmental impacts. The potential for environmental impacts associated with the installation of the stormwater system, and all construction activities within the Plan Area, are addressed throughout this EIR. In some cases, the direct and indirect impacts are potentially significant and warrant mitigation measures, while in other cases there are significant and unavoidable impacts. The future storm drainage infrastructure would fall within the range of environmental impacts disclosed in this EIR, and would be subject to relevant mitigation measures included in this EIR.

It is noted, however, that future development of storm drainage infrastructure within the proposed Plan Area would contribute to significant and unavoidable impacts related to aesthetics (Impact 3.1-3), agricultural resources (Impact 3.2-1 and Impact 3.2-2), air quality (Impacts 3.3-1 through 3.3-3), public services and recreation (Impacts 3.13-3 through 3.13-5). Therefore, consistent with the analysis included in this Draft EIR, impacts related to construction of new or expanded stormwater drainage facilities to serve the Plan Area are considered ***significant and unavoidable***.

### 3.15.4 SOLID WASTE

#### EXISTING SETTING

Fresno diverts a majority of its solid waste away from landfills and into recycling and composting programs. Recycling of construction and demolition debris and materials is required for any City-issued building, relocation or demolition permitted project that generates at least eight cubic yards of material by volume, and all waste must be hauled to a City-approved facility.

The Solid Waste Division of the City of Fresno provides curbside collection of residential bulky goods through operation cleanup. The solid waste division also collects through a three-cart system solid waste, recycling, green waste, as well as waste oil and waste oil filters weekly.

Currently, the City of Fresno has granted franchises for non-exclusive roll off services to 24 roll off companies for bins which were 10 cubic yards or greater. The City also granted exclusive franchise agreements for the collection of commercial solid waste, recyclables and green waste to two franchises. Allied Waste Services (formally Republic) is responsible for all commercial services north of Ashlan Avenue. Mid Valley has all commercial locations south of Ashlan. Both haulers are responsible for Commercial, Multifamily, and Industrial up to 8 cubic yards, which fall into City of Fresno jurisdiction. Both city and (non-exclusive) / exclusive franchise haulers provide and maintain containers; respond to customer complaints/concerns and provide roll-off and compactor services to residential, multi-family and commercial customers respective to their agreements. Garbage disposed of in the City of Fresno is taken to Cedar Avenue Recycling and Transfer Station (CARTS).

Once trash has been off-loaded at the transfer station, it is sorted and non-recyclable solid waste is loaded onto large trucks and taken to the American Avenue Landfill (i.e. American Avenue Disposal Site, Site Solid Waste Information System [SWIS] Number 10-AA-0009) located approximately six miles southwest of Kerman. American Avenue Landfill is owned and operated by Fresno County and began operations in 1992 for both public and commercial solid waste haulers. The American Avenue Landfill is a sanitary landfill, meaning that it is a disposal site for non-hazardous solid waste spread in layers, compacted to the smallest practical volume, and covered by material applied at the end of each operating day.

The American Avenue Landfill has a maximum permitted capacity of 32,700,000 cubic yards and a remaining capacity of 29,358,535 cubic yards, with an estimated closure date of August 31, 2031. The maximum permitted throughput is 2,200 tons per day.

One other active disposal site is located in Fresno County. The City of Clovis Landfill (SWIS Number 10-AA-0004) has a maximum permitted capacity of 7,800,000 cubic yards and a remaining capacity of 7,740,000 cubic yards, with an estimated closure date of April 30, 2047. The maximum permitted throughput is 2,000 tons per day.

Green waste hauled by the residential solid waste operations is delivered to one of two locations. Earthwise/Green Valley Recycling located at 2365 North Avenue and West Coast Waste at 30777 Golden State Frontage Road are within a quarter mile of one another in southwest Fresno.

Commercial green waste and organics delivered to Elm Avenue Recycling by Mid Valley are then transferred to the Kerman facility and composted with organic compost, which is then used by organic farms in the region. Commercial green waste and organics being delivered by Allied Waste are taken to Rice Road Transfer Station, which are then trans-loaded into trucks, which are delivered to Kochergen Farms for composting and land application.

Recycling collected by residential is delivered to both CARTS and Elm Ave. Both facilities have Material Recovery Facilities (MRF's) which sort through the co-mingled recycling stream to sort the materials. Commercial franchises deliver recycling to Elm Avenue only. The City's diversion rate has declined over the last decade from 74 percent to 63 percent. It is anticipated that the County will complete the relocation of their Environmental Compliance Center (HHW) facility, which is currently housed at the American Avenue landfill to the new location at the corner of West Avenue and West Dan Ronquillo Drive in 2022. The new County location will alleviate the need for the twice a year drop off events, opting for a closer location open every weekend to the public.

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## REGULATORY SETTING – SOLID WASTE

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The following is an overview of the State and local regulations related to solid waste that are applicable to the proposed Specific Plan.

### **State**

#### **AB 939: CALIFORNIA'S INTEGRATED WASTE MANAGEMENT ACT OF 1989**

California's Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling and composting. In order to achieve this goal, AB 939 requires that each City and County prepare and submit a Source Reduction and Recycling Element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 939 also established requirements for cities and counties to develop and implement plans for the safe management of household hazardous wastes. In order to achieve this goal, AB 939 requires that each city and county prepare and submit a Household Hazardous Waste Element.

#### **AB 341 (75 PERCENT SOLID WASTE DIVERSION)**

In 2011, the Legislature implemented a new approach to the management of solid waste. AB 341 (Chesbro, Chapter 476, Statutes of 2011) required that CalRecycle oversee mandatory commercial recycling and established a new statewide goal of 75 percent recycling through source reduction, recycling, and composting by 2020. This paradigm adds to the policies in AB 939 in several significant ways. First, AB 341 established a statewide policy goal, rather than a jurisdictional mandate. This places the onus for achieving the goal on the State rather than on the cities and counties that are directly responsible for waste disposal and recycling. Under the law, individual jurisdictions are not required to meet the new policy goal.

AB 341 requires CalRecycle to issue a report to the Legislature that includes strategies and recommendations that would enable the State to divert 75 percent of the solid waste generated in the State from disposal by January 1, 2020, requires businesses that meet specified thresholds in the bill to arrange for recycling services by January 1, 2012, and also streamlines various regulatory processes.

#### SB 1374 (CONSTRUCTION AND DEMOLITION WASTE MATERIALS DIVERSION)

Senate Bill 1374 (SB 1374), Construction and Demolition Waste Materials Diversion Requirements, requires that jurisdictions summarize their progress realized in diverting construction and demolition waste from the waste stream in their annual AB 939 reports. SB 1374 required the CIWMB to adopt a model construction and demolition ordinance for voluntary implementation by local jurisdictions.

#### CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN)

CALGreen requires the diversion of at least 50 percent of the construction waste generated during most new construction projects (CALGreen Sections 4.408 and 5.408) and some additions and alterations to nonresidential building projects.

### Local

#### FRESNO GENERAL PLAN

The Fresno General Plan contains the following objectives and policies that are relevant to solid waste for the proposed Specific Plan:

**Objective PU-9:** Provide adequate solid waste facilities and services for the collection, transfer, recycling, and disposal of refuse.

**Policy PU-9-a: New Techniques.** Continue to collaborate with affected stakeholders and partners to identify and support programs and new techniques of solid waste disposal, such as recycling, composting, waste to energy technology, and waste separation, to reduce the volume and toxicity of solid wastes that must be sent to landfill facilities.

**Policy PU-9-b: Compliance with State Law.** Continue to pursue programs to maintain conformance with the Solid Waste Management Act of 1989 or as otherwise required by law and mandated diversion goals.

**Objective RC-11:** Strive to reduce the solid waste going to landfills to zero by 2035.

**Policy RC-11-a: Waste Reduction Strategies.** Maintain current targets for recycling and re-use of all types of waste material in the city and enhance waste and wastewater management practices to reduce natural resource consumption, including the following measures:

- Continue to require recyclable material collection and storage areas in all residential development.
- Establish recycling collection and storage area standards for commercial and industrial facilities to size the recycling areas according to the anticipated types and amounts of recyclable material generated.
- Provide educational materials to residents on how and what to recycle and how to dispose of hazardous waste.
- Provide recycling canisters and collection in public areas where trash cans are also provided.
- Institute a program to evaluate major waste generators and identify recycling opportunities for their facilities and operations.
- Continue to partner with the California Integrated Waste Management Board on waste diversion and recycling programs and the CalMax (California Materials Exchange) program.
- Evaluate the feasibility of a residential, restaurant, and institutional food waste segregation and recycling program, to reduce the amount of organic material sent to landfill and minimize the emissions generated by decomposing organic material.
- Evaluate the feasibility of “carbon footprinting” for the City’s wastewater treatment facilities, biomass and composting operations, solid waste collection and recycling programs.
- Expand yard waste collection to divert compostable waste from landfills.
- Study the feasibility and cost-benefit analysis of a municipal composting program to collect and compost food and yard waste, including institutional food and yard waste, using the resulting compost matter for City park and median maintenance.

### THRESHOLDS OF SIGNIFICANCE – SOLID WASTE

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Consistent with Appendix G of the CEQA Guidelines, the proposed Specific Plan will have a significant impact on Utilities if it would:

- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; and/or
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.



## IMPACTS AND MITIGATION MEASURES

### **Impact 3.15-6: The proposed Specific Plan would be served by a landfill with sufficient permitted capacity to accommodate the Plan Area's solid waste disposal needs, and would comply with federal, State, and local statutes and regulations related to solid waste. (Less than Significant)**

As noted previously, the American Avenue Landfill has a maximum permitted capacity of 32,700,000 cubic yards and a remaining capacity of 29,358,535 cubic yards, with an estimated closure date of August 31, 2031. The maximum permitted throughput is 2,200 tons per day. Additionally, the City of Clovis Landfill (SWIS Number 10-AA-0004) has a maximum permitted capacity of 7,800,000 cubic yards and a remaining capacity of 7,740,000 cubic yards, with an estimated closure date of April 30, 2047. The maximum permitted throughput is 2,000 tons per day.

New residential, commercial, mixed use, and industrial land uses in the Specific Plan Area would increase the amount of solid waste generated by residents and businesses. The increase in growth and development as a result of the implementation of the Specific Plan could result in an increase of solid waste to transfer stations and landfills, and could contribute to an increased demand for solid waste services throughout the Plan Area.

Table 3.15-8 shows the estimated solid waste generation for maximum buildout of the Plan Area using the solid waste generation rates in the City's General Plan EIR (2020). As shown in the table, buildout of the Specific Plan could generate up to approximately 800,825.04 pounds of solid waste per day (or approximately 400 tons per day).

**TABLE 3.15-8: ESTIMATED SOLID WASTE GENERATION**

<i>LAND USE</i>	<i>SOLID WASTE GENERATION RATE</i>	<i>MAXIMUM DEVELOPMENT POTENTIAL</i>	<i>ESTIMATED SOLID WASTE (LBS/DAY)</i>
Single-Family Residential <sup>1</sup>	10 lbs/unit/day	35,865 units	358,650.00
Multi-Family Residential <sup>2</sup>	7 lbs/unit/day	11,207 units	78,449.00
Commercial/Office <sup>3</sup>	6 lbs/1,000 sf/day	32,768,957.77 sf	196,613.75
Mixed Use <sup>4</sup>	6 lbs/1,000 sf/day	26,425,464.10 sf	158,552.78
Industrial <sup>5</sup>	6 lbs/1,000 sf/day	1,426,584.42	8,559.51
<b>TOTAL</b>			<b>800,825.04</b>

NOTES: <sup>1</sup> SINGLE-FAMILY RESIDENTIAL USES WERE ASSUMED FOR THE LOW, MEDIUM LOW, AND MEDIUM RESIDENTIAL LAND USE DESIGNATIONS.

<sup>2</sup> MULTI-FAMILY RESIDENTIAL USES WERE ASSUMED FOR THE MEDIUM HIGH, URBAN NEIGHBORHOOD, AND HIGH RESIDENTIAL LAND USE DESIGNATIONS.

<sup>3</sup> COMMERCIAL/OFFICE USES WERE ASSUMED FOR THE COMMUNITY COMMERCIAL, RECREATION COMMERCIAL, GENERAL COMMERCIAL, REGIONAL COMMERCIAL, OFFICE EMPLOYMENT, AND BUSINESS PARK EMPLOYMENT LAND USE DESIGNATIONS.

<sup>4</sup> MIXED USE USES WERE ASSUMED FOR THE NEIGHBORHOOD, CORRIDOR/CENTER, AND REGIONAL MIXED-USE LAND USE DESIGNATIONS.

<sup>5</sup> INDUSTRIAL USES WERE ASSUMED FOR THE LIGHT INDUSTRIAL EMPLOYMENT LAND USE DESIGNATION.

SOURCE: DE NOVO PLANNING GROUP, 2020.

Based on the estimated closure dates of the American Avenue Landfill in 2031 and the Clovis Landfill in 2047, development under the Specific Plan would not result in a significant impact on landfill capacity.

It is noted that AB 939 mandates the reduction of solid waste disposal in landfills, and the City is currently achieving a 71 percent diversion rate (based on 2009 data) which is anticipated to increase due to a Fresno City Council resolution that commits the City to the goal of a Zero Waste goal by 2025. This analysis assumes a worst-case scenario and does not factor in the diversion rate which is already occurring.

### CONCLUSION

The Specific Plan would be required to comply with applicable State and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. The addition of the volume of solid waste associated with future buildout of the Specific Plan Area, approximately 400 tons per day at total buildout, would increase the total to the American Avenue Landfill and the Clovis Landfill; however, this increase would not cause an exceedance of the landfill's remaining capacity. This is a *less than significant* impact.